what is claimed is:

1. A wavelength conversion laser apparatus comprising a semiconductor light emitting device, an optical fiber having a grating provided therein, a wavelength conversion device for receiving an input light from an optical resonator which consists mainly of the semiconductor light emitting device and the optical fiber and releasing a harmonic of the input light, and a grating expanding means for expanding the grating in its lengthwise direction to match the wavelength of the output light from the optical resonator with the wavelength range of the input light where the wavelength of the input light can be converted by the wavelength conversion device.

2. A wavelength conversion laser apparatus according to claim 1, wherein the grating expanding means comprises a base having a first retainer provided for securing the optical fiber, a movable nut arranged for slidably moving on the base and having a second retainer

provided for securing the optical fiber, a lead screw threaded with the movable nut, and a rotating means for rotating the lead screw.

3. A wavelength conversion laser apparatus according to claim 1, wherein the grating expanding means comprises a bar-like heat-sensitive expandable member for securing the optical fiber at two locations between which the grating is installed and a heating means for heating the heat-sensitive expandable member to increase the distance including the grating between the two locations.

4. A wavelength conversion laser apparatus according to claim 3, wherein the heat-sensitive expandable member comprises two or more materials which are different in the linear expansion coefficient and are bonded to each other.

5. A wavelength conversion laser apparatus according to claim 1, wherein the grating expanding means comprises a heat-sensitive

expandable member of a ring or disk shape having an outer side thereof arranged on which a portion of the optical fiber including the grating is wound and a heating means for heating the heat-sensitive expandable member to expand the outer side.

6. A wavelength conversion laser apparatus according to claim 1, wherein the grating expanding means comprises a bar-like piezoelectric member arranged to secure the optical fiber at two locations between which the grating is installed and a voltage impressing means for supplying the piezoelectric member with a voltage to increase the distance between the two locations.

7. A wavelength conversion laser apparatus comprising a semiconductor light emitting device, an optical fiber having a grating provided therein, a wavelength conversion device for receiving an input light from an optical resonator which consists mainly of the

semiconductor light emitting device and the optical fiber and releasing a harmonic of the input light, and a resonant wavelength adjusting means for adjusting the wavelength of the light from the optical resonator in accordance with the temperature so as to maintain the harmonic of the light from the wavelength conversion device constant or substantially constant regardless of a change in the temperature of the wavelength conversion device.

8. A wavelength conversion laser apparatus according to claim 7, wherein the resonant wavelength adjusting means is a grating expanding means for expanding the grating in its lengthwise direction.

9. A wavelength conversion laser apparatus according to claim 7, wherein the grating expanding means is a bar-like heat-sensitive expandable member which secures the optical fiber at two locations between which the grating is located.

10. A wavelength conversion laser apparatus according to claim 8, wherein the grating expanding means is a heat-sensitive expandable member of a ring or disk shape having an outer side thereof arranged on which a portion of the optical fiber including the grating is wound.

11. A wavelength conversion laser apparatus according to claim 9 or 10, wherein the heat-sensitive expandable member has a linear expansion coefficient of $5*10^{-5}$ [K^{-1}] - $6*10^{-5}$ [K^{-1}].

12. A wavelength conversion laser apparatus according to claim 9 or 10, wherein the heat-sensitive expandable member is made of a plastic material.

13. A wavelength conversion laser apparatus according to claim 9 or 10, wherein the heat-sensitive expandable member comprises two or more materials which are different in the linear expansion coefficient and are bonded to each other.